

REMARKS

Claims 1 and 2 were pending in the present application. Claims 1 and 2 have been amended. New claims 3 and 4 have been added. Reexamination and reconsideration of the claims, as amended, are respectfully requested.

The Examiner rejected claim 1 under 35 U.S.C. 103(a) as being unpatentable over Nagai, et al. 6,344,718 in view of Ernst et al. 4,057,258. Claims 1 and 2 have been amended, and new Claims 3 and 4 have been added to clarify the present invention. This rejection is respectfully traversed.

An actuator according to the present invention employs a body to house a driving force transmitter where the body has a slit 62b extending the length of the body. Please see Figures 1 and 7 of the present application. A slider moves along this slit 62b, which is filled only with a magnetic fluid 68 as shown

in Figure 7. Claim 1, as amended, claims “only the magnetic fluid closes the slit, and is split by the slider as the slider moves.” A top cover 60 of the body includes walls 64a and 64b which define the slit 62b. The actuator of the present invention further employs a pair of magnetic bodies 66a and 66b. These magnetic bodies 66a and 66b are disposed along the length of the slit 62b, but are disposed away from the magnetic fluid 68 on the other side of the walls 64a and 64b, respectively. New independent Claim 4 requires a “body having a pair of walls defining a slit therebetween” and “a magnetic fluid disposed between the walls, and only the magnetic fluid closing the slit.”

The provision of only the magnetic fluid to seal the slit prevents dust or other foreign matter from outside from entering into the inside of the actuator through the slit, and prevents dust or other foreign matter generated inside the

actuator from flowing out through the slit. Since the slit is closed by the magnetic fluid as a liquid, the displacement resistance is reduced as the slider moves along the slit; as a consequence, the slider can move more smoothly.

Please see page 3, paragraphs 2 and 3 of the Specification.

The reference of Nagai, et al. does not disclose the actuator of the present invention since it does not disclose, among others, any magnetic fluid closing a slit or magnetic bodies which extend along the slit. The reference of Ernst also fails to make up for the deficiencies of the Nagai reference as follows: The Ernst reference in its figures 4 through 11 shows various embodiments of its slit area. For instance, figure 4 shows a pair of flexible sealing lips 123 and 124 that are made from plastic, as well as an entrainment means 119 which moves between and along the sealing lips 123 and 124. A magnetic

fluid F is shown in figure 4. However, Ernst does not show an actuator body having "a pair of walls defining a slit therebetween," as defined in Claim 4, nor does it show that only the magnetic fluid closes the slit as required by both Claims 1 and 4. The magnetic fluid F of Ernst does not close the slit by itself as required by Claims 1 and 4. Rather, it seals only the fine gaps left by the flexible plastic sealing lips 123 and 124. Nagai chooses to employ a pair of plastic sealing lips even though it could create additional resistance force against the sliding motion of the entrenchment means 119. This is contrary to the teaching of the present invention, where the magnetic fluid is used because as a liquid, the displacement resistance is reduced as the slider moves along the slit, and as a consequence, the slider can move more smoothly. By using the flexible plastic sealing lips 123 and 124 with their considerable re-

sistance, Ernst teaches away from using only the magnetic fluid without other sealing materials for closing the slit.

The Examiner rejected Claims 1 and 2 under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi 6,241,230 in view of Ernst et al. 4, 057,258.

Claims 1 and 2 have been amended, and new claims 3 and 4 have been added.

The claims, as amended and added, now particularly point out and clearly define a patentable invention. This rejection is respectfully traversed.

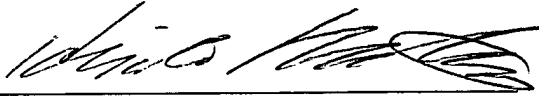
What Kawaguchi discloses is even less than Ernst. Lacking "a pair of magnetic bodies which extend along the slit by a prescribed length and face each other with the slider between them; and a magnetic fluid which is indirectly held between the pair of magnetic bodies, wherein only the magnetic fluid closes the slit, and is split by the slider as the slider moves" as claimed in

Claim 1, and similarly claimed in Claim 4, Ernst cannot make up the deficiencies of Kawaguchi for the same reasons as set forth above. Therefore, Kawaguchi and Ernst, each singly or in combination, still lack the disclosure and the teaching of the requisite magnetic fluid where only the magnetic field closes the slit, among others, as claimed by Claims 1 and 4.

In view of the foregoing, all of the claims pending in the present application are in condition for allowance. Reexamination and reconsideration of the claims, as amended and as added, are respectfully requested and

an allowance at an earliest date solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Hisako Muramatsu', is written over a horizontal line.

Hisako Muramatsu

Reg. No. 34,955

Yokoi & Co. U.S.A., Inc.

Tel/Fax (310) 578-2340

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